

**What is claimed is:**

1. A electron gun for a color cathode ray tube comprising:  
a cathode that emits electron beams;  
a plurality of electrodes arranged from the cathode towards a screen of the cathode ray

5 tube; and

- a shield cup, wherein the shield cup further comprises:

- a central electron beam hole;

- two outer electron beam holes wherein the central and outer beam holes are substantially collinear along a horizontal axis; and

10 first, second, third, and fourth magnetic pieces;

- wherein the first and second magnetic pieces are adjacent to a first outer electron beam hole and on opposite sides of the horizontal axis; and

- wherein the third and fourth magnetic pieces are adjacent to a second outer electron beam hole and on opposite sides of the horizontal axis.

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2. The electron gun of claim 1, wherein the magnetic pieces have a first and a second end, wherein the first ends are closer to the central electron beam hole than the second end, and wherein the first ends are closer to the horizontal axis than the second ends.

20 3. The electron gun of claim 2, wherein the magnetic pieces are substantially rectangular.

4. The electron gun of claim 2, wherein the magnetic pieces are slanted in the range of 18 to 57 degrees with respect to the horizontal axis.

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5. The electron gun of claim 2, wherein the magnetic pieces are slanted in the range of 20 to 23 degrees with respect to the horizontal axis.

6. The electron gun of claim 1, wherein:

5 a first distance  $l'$  is defined as the distance between the center of the central electron beam hole and the first end of the magnetic pieces along the horizontal axis;

a second distance  $l$  is defined as the distance between the center of the central electron beam hole and the center of the outer electron beam holes; and

10 the electron beam holes and magnetic pieces are arranged so that  $l'/l$  greater than or equal to 0.5 and less than or equal to 1.0.

7. The electron gun of claim 2, wherein the magnetic pieces are L-shaped and wherein the magnetic pieces have a first leg between the first and second ends of the magnetic piece and a second leg attached to the first leg at the second end and the second leg extends  
15 away from the horizontal axis.

8. The electron gun of claim 7, wherein the magnetic pieces are slanted in the range of 18 to 57 degrees with respect to the horizontal axis.

20 9. The electron gun of claim 7, wherein the magnetic pieces are slanted in the range of 20 to 23 degrees with respect to the horizontal axis.

10. The electron gun of claim 9, wherein:

25 a first distance  $l'$  is defined as the distance between the center of the central electron beam hole and the first end of the magnetic pieces along the horizontal axis;

a second distance  $l$  is defined as the distance between the center of the central electron beam hole and the center of the outer electron beam holes; and

wherein the electron beam holes and magnetic pieces are arranged so that  $l'/l$  greater than or equal to 0.5 and less than or equal to 1.0.

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11. The electron gun of claim 1, wherein the magnetic pieces are substantially L-shaped with a first and second leg, wherein the first leg is substantially parallel with the horizontal axis with a first and a second end and the first end is closer to the central electron beam hole, wherein the second leg is attached to the first end of the first leg and extends

10 toward the horizontal axis.

12. The electron gun of claim 11, wherein:

a first distance  $l'$  is defined as the distance between the center of the central electron beam hole and the first end of the magnetic pieces along the horizontal axis;

15 a second distance  $l$  is defined as the distance between the center of the central electron beam hole and the center of the outer electron beam holes; and

wherein the electron beam holes and magnetic pieces are arranged so that  $l'/l$  greater than or equal to 0.5 and less than or equal to 1.0.

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13. A electron gun for a color cathode ray tube comprising:

a cathode that emits electron beams;

a plurality of electrodes arranged from the cathode towards a screen of the cathode ray tube; and

a shield cup, wherein the shield cup further comprises:

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a central electron beam hole;

a first and second outer electron beam holes wherein the central and outer beam holes are substantially collinear along a horizontal axis; and

first and second magnetic pieces;

wherein the first and second magnetic pieces are on opposite sides of the horizontal axis and extend such that a portion the first and second outer electron beam holes are between the first and second magnetic pieces.

14. The electron gun of claim 13, wherein the width of bar-shaped magnetic piece is in the range of about 4 to 11 mm.

15. The electron gun of claim 13, wherein the height of bar-shaped magnetic piece is in the range of about 1 to 5 mm.

16. The electron gun of claim 13, wherein the thickness of bar-shaped magnetic piece is in the range of about 0.1 to 3.0 mm.

17. The electron gun of claim 13, wherein the bar-shaped magnetic piece has a center spaced from the horizontal axis in the range of about 2.5 to 4.5 mm.

18. The electron gun of claim 13, wherein the width of bar-shaped magnetic piece is in the range of about 4 to 11 mm, the height of bar-shaped magnetic piece is in the range of about 1 to 5 mm, the thickness of bar-shaped magnetic piece is in the range of about 0.1 to 3.0 mm, and the bar-shaped magnetic piece has a center spaced from the horizontal axis in the range of about 2.5 to 4.5 mm.

19. The electron gun of claim 13, wherein the magnetic piece has round shaped ends.